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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,392	03/26/2004	Chang-Hun Lee	6192.0364.US	7554
23345	7590	01/20/2006	EXAMINER	
MCGUIREWOODS, LLP 1750 TYSONS BLVD SUITE 1800 MCLEAN, VA 22102			SCHECHTER, ANDREW M	
			ART UNIT ,	PAPER NUMBER
			2871	

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,392	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> Andrew Schechter	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.  
     4a) Of the above claim(s) 3 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 4 and 5 should be designated by a legend such as --Prior Art-- or --Related Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

3. Claims 2, 3, 9, and 10 are objected to because of the following informalities: the claims refer to "the edges of the common electrode line and the pixel electrode line", but there are two edges of each, and they are not parallel to each other (see claim 4, for instance). It is assumed by the examiner that these claims refer to the first edge. Appropriate correction is required.

4. Claims 3 and 10 are objected to because of the following informalities: “makes clockwise obtuse angles” in line 3 of each should be “makes counterclockwise obtuse angles”. (The examiner is aware that claims 3 and 10 are withdrawn, but raises these issues now to expedite future proceedings.) Appropriate correction is requested.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, 8, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by *Suzuki et al.*, U.S. Patent No. 5,905,556.

*Suzuki* discloses [see Figs. 20 and 21, for instance] a liquid crystal display comprising first and second substrates [1 and 5], a common electrode [CE] on the first substrate connected to a common electrode line [at top, say], making an obtuse angle; a pixel electrode [S] formed on the first substrate and alternately arranged with the common electrode, connected to a pixel electrode line [at top, say], making an obtuse angle; and a liquid crystal layer [M] interposed between the substrates, wherein a first edge of the common electrode line [the slanted portion] makes an obtuse angle relative to an initial molecular director [ $\phi_{LC}$ , the direction of M, given as an angle from a vector going to the right horizontally] and a first edge of the pixel electrode line [the slanted portion] makes an obtuse angle relative to the initial molecular director [the slant of the

electrodes is given by  $\phi_A$ , and the condition that the angles are obtuse is mathematically equivalent to the condition  $\phi_A < \phi_{LC} - 90^\circ$  given as equation (5) in col. 8; note that  $\phi_A$  is a negative number when the slanted portions are oriented as in Figs. 20 and 21]. Claim 1 is therefore anticipated.

There are alignment films [4, 6] which are rubbed [col. 6, lines 10ff.] giving the initial molecular director direction, so claim 8 is also anticipated.

The initial molecular director makes a clockwise acute angle relative to the common electrode and the pixel electrode [see Fig. 20, equation (1)], and makes counterclockwise obtuse angles with the edges of the common electrode line and the pixel electrode line [obtuse as discussed above, and the direction is clearly counterclockwise], so claims 2 and 9 are also anticipated. A second edge [the top] of the common electrode line extends substantially perpendicular to the common electrode, and a second edge [the top] of the pixel electrode line extends substantially perpendicular to the pixel electrode, so claim 4 is also anticipated.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Suzuki et al.*, U.S. Patent No. 5,905,556 in view of *Ono et al.*, U.S. Patent No. 6,774,956.

*Suzuki* does not disclose that the pixel electrode and common electrode are curved. *Ono* does disclose [see Fig. 1] an analogous device in which the pixel electrode and common electrode are curved. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this shape for the electrodes in *Suzuki*, motivated by *Ono*'s teaching that electrodes in this shape produce a multi-domain-type device [col. 8, lines 31-32], which produces improved viewing angle properties. Claim 5 is therefore unpatentable.

The curved pixel and common electrodes of *Ono*, in the device of *Suzuki*, would be oblique to the second edges of the pixel and common electrode lines, so claim 6 is also unpatentable. The pitch of the curving of the electrodes is the vertical length of the pixel region; *Suzuki* discloses the pixel region as being 110  $\mu\text{m}$  by 330  $\mu\text{m}$ , so the pitch is larger than about 50  $\mu\text{m}$ , and claim 7 is also unpatentable.

#### ***Election/Restrictions***

9. Applicant's election without traverse of Species A, claims 2 and 9, in the reply filed on 13 January 2006 is acknowledged.

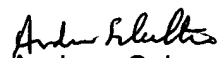
10. Claims 3 and 10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 13 January 2006.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Andrew Schechter  
Primary Examiner  
Technology Center 2800  
19 January 2006